

performance between the client computer and a server replica based upon the client computer's location in an internetwork; and

a means for directing the client computer to at least one server replica that is estimated to provide good performance based upon the client computer's location in the internetwork based on the performance metric values of the server replicas as calculated by the replica router.

24. (New) An internetwork replica router comprising:

at least one communications interface;

a processor coupled to the at least one communications interface; and

a memory coupled to the processor;

wherein the processor includes:

a means for receiving replica advertisements, each of the advertisements containing at least one identifier of a network in the internetwork to be serviced by at least one server replica;

a means for maintaining a database of the server replica advertisements;

a means for receiving network requests from a client computer; and

a means for directing the client computer to one of the at least one server replicas based upon the relationship between the networks identified in the advertisements in the database and a network in which the client computer is located.

REMARKS

The Applicant has amended claims 1-17 and 19-20 to define, more clearly, the subject matter that the Applicant regards as the invention. For example, claims 1-17 and 19-20 are now directed toward a replica router and a method for routing by a replica router.

Regarding the amended method claims (claims 10-17, 20), support for the amendments is found in the Application in the description of Figs. 3A-3C on page 10, line 6 through page 14, line 14. Figs. 3A-3C are flowcharts that describe the

operation, in part, of replica routers. No new matter is added to the application by these amendments.

Regarding the amended device claims (claims 1-9, 19), independent claims 1 and 19 have been amended to include at least one communications interface, a processor coupled to the at least one communications interface, and a memory coupled to the processor. Support for the amendments is found on page 10, lines 29-30 of the present Application, where the Applicant states that a computer can be a replica router. Because a computer includes at least one communications interface, a processor coupled to the at least one communications interface, and a memory coupled to the processor, no new matter is added to the application by these amendments.

Applicant has also added new independent claims 21-24 to the Application. Claims 21 and 22 relate to computer program product having a computer-readable medium that, when performed on a computer, causes the computer to perform as a replica router. Claims 23 and 24 relate to a replica router. As described above, the Applicant describes both the use of a replica router and the use of a computer as a replica router. Therefore, these new claims do not add new matter to the Application.

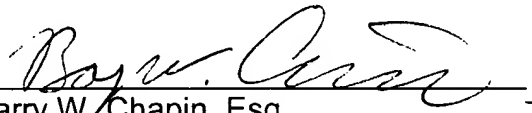
If the U.S. Patent and Trademark Office deems a fee necessary, this fee may be charged to the account of the undersigned, Deposit Account No. 50-0901.

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If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned collect at (508) 366-9600, in Westborough, Massachusetts.

Respectfully submitted,

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APPENDIX

1. (Amended) [An internetwork] A replica [routing system] router comprising:
[a plurality of server replicas, at least one replica router, and at least one client computer interconnected by a communications internetwork;]
[the client computer being programmed to cause a network request for access to a server replica to be transmitted over a communications internetwork;]
at least one communications interface;
a processor coupled to the at least one communications interface; and
a memory coupled to the processor;
wherein the processor is configured to:
[at least one replica router being programmed to] receive [the] a network request for access from a client computer [and to];
calculate a performance metric value for each of at least [some of the] two server replicas, [that specifies] the value specifying an estimated communication performance between the client computer and [the] a server replica[,] based upon the client computer's location in [the] an internetwork[, and being programmed to]; and
direct the client computer to at least one server replica that is estimated to provide good performance based upon the client computer's location in the internetwork[, the replica router selecting the server replica to which it directs the client computer] based on the performance metric values of the server replicas as calculated by the replica router[;].
[the server replica to which the client computer is directed by the replica router being programmed to respond to the network request from the client computer.]
2. (Amended) The [system] replica router of claim 1 wherein the processor is further configured to:

[the server replicas are programmed to cause server replica] receive advertisements from the server replica [to be sent to the replica router], the advertisements containing information from which the replica router [can calculate] calculates the performance metric value; and

[the replica router is programmed to] maintain a database of the server replica advertisements.

3. (Amended) The [system] replica router of claim 2 wherein the processor is further configured to:

[the replica router is programmed to] match the replica advertisements to their actual source IP address where each of the replica advertisements contain the actual source IP address of the server replica; and

[to] determine whether any of the server replicas are located behind firewalls.

4. (Amended) The [system] replica router of claim 1 wherein the processor is further configured to:

[the client computer is programmed to send] receive a description of [its] a client computer's network environment [to the replica router]; and

[the replica router is programmed to] calculate the performance metric value for a server replica based upon the description of the client computer's network environment.

5. (Amended) The [system] replica router of claim 1 wherein the processor is further configured to [the replica router is programmed to] calculate the performance metric value of a server replica based upon the performance metric value of at least one network router located in a path from the client computer to the replica router.

6. (Amended) The [system] replica router of claim 1[,], wherein the processor is further configured to receive the [client computer is programmed to cause the] network request for access to the server replica [to be sent to the replica router by] from multicasting or broadcasting of the replica routing request over the communications internetwork.

7. (Amended) The [system] replica router of claim 1[,], wherein the processor is further configured to [there are a plurality of replica routers arranged in a hierarchy, at least one of the replica routers being programmed to] direct the client computer to a server replica that is estimated to provide good performance based upon the client computer's location in the internetwork by directing the client computer to a replica router lower in [the] a replica router hierarchy.

8. (Amended) The [system] replica router of claim 7 wherein the processor is further configured to[:] [at least one the replica routers is programmed to] cause a replica router advertisement to be sent to a replica router higher in the replica router hierarchy, the replica router advertisement containing information from which the replica router higher in the hierarchy [can calculate] calculates the performance metric value[; and], the replica router higher in the hierarchy [is] being programmed to store the replica router advertisement in the database of advertisements.

9. (Amended) The [system] replica router of claim 8 wherein the replica router higher in the hierarchy is programmed to match the replica router advertisement to its actual source IP address to determine whether the replica router that caused the replica router advertisement to be sent is located behind a firewall.

10. (Amended) For a replication router, [A] a method of replica routing in a communications internetwork [comprising a plurality of server replicas, at least one replica router, and at least one client computer,] comprising the steps of:

[causing a network request for access to a server replica to be transmitted from the client computer over the communications internetwork;]

receiving [the] a network request [at at least one replica router] from a client computer;

calculating[, at the replica router,] a performance metric value for each of at least [some of the] two server replicas, the value specifying an [that specifies] estimated communication performance between the client computer and the server replica[,] based upon the client computer's location in [the] an internetwork;

directing the client computer to at least one server replica that is estimated to provide good performance based upon the client computer's location in the internetwork[, the server replica to which the client computer is directed being selected] based on the performance metric values of the server replicas as calculated by the replica router[;].

[responding, at the server replica to which the client computer is directed, to the network request from the client computer.]

11. (Amended) The method of claim 10 further comprising the steps of:

[causing server replica] receiving advertisements [to be sent] from the server replicas [to the replica router], the advertisements containing information from which the replica router [can calculate] calculates the performance metric values; and

[the replica router] maintaining a database of the server replica advertisements.

12. (Amended) The method of claim 11 further comprising the [step] steps of:

matching[, at the replica router,] the replica advertisements to their actual source IP address where each of the replica advertisements contain the actual source IP address of the server replica; and

[to determine] determining whether any of the server replicas [or replica routers] are located behind firewalls.

13. (Amended) The method of claim 10 further comprising the steps of:

[sending, from the client computer,] receive a description of [its] a client computer's network environment [to the replica router]; and

calculating[, at the replica router,] the performance metric value for a server replica based upon the description of the client computer's network environment.

14. (Amended) The method of claim 10 further comprising the step of calculating[, at the replica router,] the performance metric value of a server replica based upon the performance metric value of at least one network router located in a path from the client computer to the replica router.

15. (Amended) The method of claim 10[,] further comprising the step of [causing] receiving the network request for access to the server replica [to be sent from the client computer to the replica router by] from multicasting or broadcasting of the replica routing request over the communications internetwork.

16. (Amended) The method of claim 10[, wherein there are a plurality of replica routers arranged in a hierarchy, and the method] further [comprises] comprising the step of [at least one of the replica routers] directing the client computer to a server replica that is estimated to provide good performance based upon the client computer's location in the internetwork by directing the client computer to a replica router lower in [the] a replica router hierarchy.

17. (Amended) The method of claim 16 further comprising the [steps] step of[:]
causing a replica router advertisement to be sent from [one of] the replica [routers] router to a replica router higher in the replica router hierarchy, the

replica router advertisement containing information from which the replica router higher in the hierarchy [can calculate] calculates the performance metric value[; and], the replica router higher in the hierarchy storing the replica router advertisement in the database of advertisements.

19. (Amended) An internetwork replica [routing system] router comprising:

[a plurality of server replicas, at least one replica router, and at least one client computer interconnected by a communications internetwork;]

[the server replicas being programmed to cause server replica advertisements to be sent to the replica router, each of the advertisements containing at least one identifier of a network in the communications internetwork to be service by the server replica;]

[the client computer being programmed to cause a network request for access to a server replica to be transmitted over the communication internetwork;]

at least one communications interface;

a processor coupled to the at least one communications interface; and

a memory coupled to the processor;

wherein the processor is configured to:

receive replica advertisements, each of the advertisements containing at least one identifier of a network in the internetwork to be serviced by at least one server replica;

[at least one replica router being programmed to] maintain a database of the server replica advertisements;[, to]

receive [the] network [request] requests from [the] a client computer[,]; and

[to] direct the client computer to one of the at least one [of the] server replicas based upon the relationship between the networks identified in the advertisements in the database and a network in which the client computer is located[;].

[the server replica to which the client computer is directed by the replica router being programmed to respond to the network request from the client computer.]

20. (Amended) For a replication router, [A] a method of replica routing in a communication internetwork [comprising a plurality of server replicas, at least one replica router, and at least one client computer] comprising the steps of:

[causing server replica advertisements from the server replicas to be sent to the replica router, each of the advertisements containing at least one identifier of a network in the communications internetwork to be serviced by the server replica;]

[causing a network request for access to a server replica to be transmitted from the client computer over the communications internetwork;]

receiving replica advertisements, each of the advertisements containing at least one identifier of a network in the internetwork to be serviced by at least one server replica;

[the replica router] maintaining a database of the server replica advertisements;

receiving [the] network [request] requests from [the] a client computer[at the replica router]; and

directing the client computer to at least one [of the] server [replicas] replica based upon the relationship between the networks identified in the advertisements in the database and a network in which the client computer is located[; and].

[responding, at the server replica to which the client computer is directed by the replica router, to the network request from the client computer.]